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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,649

05/27/2005

Takayuki Mizuno

14321.75

2202

22913 7590 10/16/2008

WORKMAN NYDEGGER  
60 EAST SOUTH TEMPLE  
1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER

MOONEY, MICHAEL P

ART UNIT

PAPER NUMBER

2883

MAIL DATE

DELIVERY MODE

10/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,649	<b>Applicant(s)</b> MIZUNO ET AL.	
	<b>Examiner</b> MICHAEL P. MOONEY	<b>Art Unit</b> 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 43-84,86,88,90,92,94,96,98,100,102 and 104 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-7,9,10,12,13,15-27,29-37,39-42,85,87,89,91,93,95,97,99,101 and 103 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Continuation of Disposition of Claims: Claims pending in the application are 2-7,9,10,12,13,15-27,29-37,39-42,85,87,89,91,93,95,97,99,101 and 103.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 2-7, 9-10, 12-13, 15-27, 29-37, 39-42, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jinguji et al. (JP 05061077 A) and further in view of (Arai et al. JP 08122545 A).**

Jinguji et al. teaches reducing the wavelength dependence of the output intensity of an interferometric optical switch (IOS) by compensating the wavelength dependence of the phase difference caused by arm waveguides included in a Mach-Zehnder interferometer (MZI) using the wavelength dependence of an optical multiplexing/demultiplexing (MUX/DEMUX) [e.g., see paragraph 0028].

Jinguji et al. may not explicitly teach using the wavelength dependence of the output phase difference in optical MUX/DEMUX means included in an MZI device.

Arai et al. teaches using the wavelength dependence of the output phase difference in optical MUX/DEMUX means included in an MZI is conventionally known in the art.

Jinguji et al. and Arai et al. are combined by taking the technology of Jinguji et al. which teaches compensating the wavelength dependence of the phase difference caused by MZI arm waveguides and applying it to the utilization-of-the-wavelength-dependence-of-the-output-phase-difference in optical MUX/DEMUX technology of Arai et al. to obtain the instant invention of an IOS which compensates for the wavelength dependence of the phase difference caused by arm waveguides using the output phase difference of the optical MUX/DEMUX means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make such a combination for the purpose of reducing the wavelength-dependent inaccuracies of the device.

By the reasons and references given above and/or conventionally known art-established principles each and every element of each of claims 2-7, 9-10, 12-13, 15-27, 29-37, 39-42, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103 is rendered as obvious.

Thus claims 2-7, 9-10, 12-13, 15-27, 29-37, 39-42, 85, 87, 89, 91, 93, 95, 97, 99, 101, 103 are rejected.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Horst (20040071390) is one example of a reference that teaches that it is an often followed approach to cascade MZI switches for the purpose of creating

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a larger switch matrix. Kawachi et al. (4978188) teaches adiabatic grooves at the waveguide of an optical interferometer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL P. MOONEY whose telephone number is 571-272-2422. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael P. Mooney/  
Examiner, Art Unit 2883

/Frank G Font/  
Supervisory Patent Examiner, Art Unit 2883

FGF/mpm  
10/7/08